NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

UPLAND WILDLIFE HABITAT MANAGEMENT

(Acre)
Code 645

DEFINITION

Creating, restoring, maintaining or enhancing areas to provide food, cover, and water for upland wildlife and species, which use upland habitat for a portion of their life cycle.

PURPOSE

- Provide a variety of food for the desired kinds of wildlife species.
- Provide a variety of cover types for the desired wildlife species requirements, examples include nesting, loafing, resting, escape, travel lanes, and avoidance of threats.
- Provide drinking water for the desired kinds of wildlife species.
- Arrange habitat elements (vegetation, water) in proper amounts and locations to benefit desired species.
- Manage the wildlife habitat to achieve a viable wildlife population within the species home range.

CONDITIONS WHERE PRACTICE APPLIES

This management practice may be applied on upland (i.e., non-wetland) areas where habitat will be actively managed for nesting, feeding, resting, and/or protective cover and travel corridors for upland wildlife, such as songbirds, and game birds. This practice does not apply to preserving natural areas, such as shrub lands, forests, and riparian corridors, where no active management or periodic maintenance is planned.

CRITERIA

General Criteria Applicable to all Purposes

Upland wildlife habitat management shall consist primarily of managing vegetation to provide the quantity, quality, and distribution of upland habitat elements that will best meet the land user's objectives.

The following elements shall be considered when assessing wildlife habitat. Not all elements may apply to every habitat type.

1. Food – types of food, quantity, quality, distribution, and seasonal availability.

2. Cover - types of cover (nesting and escape), quantity, quality, and distribution.

3. Water - quantity, quality, accessibility, and seasonal availability.

4. Interspersion and Connectedness – distance and connections to food, cover, and water.

5. Breeding habitats

6. Threats

Habitat development and management shall be based on the results of a habitat appraisal. The appraisal shall be used to determine a quality rating or Habitat Suitability Index (HSI) for an individual field, land unit, or ecological community. See Supplement for Wildlife Habitat Evaluation.

If an evaluation determines that the current habitat quality is less than 0.5 (on a scale of 0 to 1), recommendations shall be made to improve the existing habitat so that the planned (future) condition will have a quality rating of 0.5 or more.

If an evaluation determines that the current condition is equal to or greater than 0.5, recommendations shall be made to maintain the existing habitat in its present condition, or improve it toward optimum conditions.

Where habitat is lacking or less than optimum, provide nesting, feeding, resting, and/or protective cover, travel corridors, and water sources as needed, according to Caribbean Area conservation practice standards. These standards include, but are not limited to, those listed as follows:

1. Conservation Cover, Code 327

2. Conservation Cropping Sequence, Code 328

3. Field Border, Code 386

4. Filter Strip, Code 393

5. Forage Harvest Management, Code 511

6. Hedgerow Planting, Code 422

7. Pasture and Hayland Planting, Code 512

8. Pond, Code 378

9. Residue Management, Codes 329A-C and Code 344

10. Riparian Forest Buffer, Code 391

11. Spring Development, Code 574

12. Tree Planting, Code 612

13.Watering Facility, Code 614

14. Wetland Restoration, Code 657

15. Woodland Improved Harvesting, Code 654

Vegetative manipulations to restore plant diversity and provide for wildlife habitat shall be accomplished by mowing, light disking, selective cutting, prescribed grazing, planting of annual food plots, or a combination of these methods, as appropriate.

All areas managed for upland wildlife habitat shall be protected, insofar as practicable, from the adverse effects of agricultural, commercial, and residential activities. Livestock and other domestic animals shall be managed or excluded as appropriate from designated habitat areas.

Management and maintenance activities shall be conducted at times when there will be minimal disturbance of wildlife and their habitat.

Contamination by pesticides, herbicides, and other chemicals shall be avoided. If weed control is necessary, preference shall be given to mechanical rather than chemical methods, whenever feasible. Frequent monitoring of the habitat area and adjacent areas should minimize the need to control invasive plant species. Noxious weeds shall be controlled as required by state law.

Refer to Tables 1-5 for plants and birds infor-ation.

CONSIDERATIONS

The following items must be considered when managing an area for upland wildlife:

1. Purpose of the project, including identification of the wildlife species or groups of species to be supported and the habitat needs that can be met on the managed property.

2. Surrounding landscape and its relationship to the project location.

3. Site conditions such as soils, available water sources, water quality and quantity, and existing vegetation.

4. The feasibility of providing food, cover, and water for the desired wildlife species at the appropriate time of year.

5. The positive and negative impacts that target specie and other upland wildlife may

have on the successful management of the site as well as on surrounding areas. Also consider the potential for attracting nuisance wildlife into an area.

6. Use this practice to promote the conservation of declining species, including threatened and endangered species.

7. Create large blocks of habitat versus increased edge, which leads to predation and parasitism by some species.

8. Consider habitat linkages and habitat corridors when developing upland wildlife habitat.

PLANS AND SPECIFICATIONS

Plans and specifications for upland wildlife habitat management shall be prepared in accordance with the previously listed criteria. Plans and specifications shall contain sufficient detail concerning management of habitat elements to ensure successful implementation of this practice.

The minimum data and documentation to be recorded in the case file:

1. Identify the wildlife species desired and the type of habitat to be managed.

2. Provide the field location of the project and acres, and assistance notes.

3. Note the location of the managed habitat on the conservation plan map.

OPERATION AND MAINTENANCE

Management and maintenance activities shall be conducted at times when there will be minimal disturbance of wildlife and their habitat. Activities will be scheduled to avoid periods when upland wildlife are nesting, and or allow the establishment, development, and management of upland vegetation for the intended purpose.

At a minimum, the following components shall be addressed in the O&M plan, as applicable:

Vegetation

Inspection to determine whether the desired vegetation is present in suitable quantity, quality, and distribution to meet the objectives of the project; the extent of management needed to maintain the desired plant species; and time of year restrictions on mowing, and others as applicable.

Water Sources

Water availability and quality to meet objectives of the practice; required inspections to assess the integrity of the structure and determine whether it is functioning properly.

Nuisance Plants and Animals

Describe the extent to which plant and animal pest species, including noxious weeds, will need to be controlled.

Acceptable Uses

Describe the acceptable uses (e.g., haying, grazing, nature preserve, etc.) and time of year/frequency of use restrictions, if any.

Frequency of Inspections

At a minimum, require annual inspections of vegetative and structural components.

SUPPLEMENT

WILDLIFE HABITAT EVALUATION WORKSHEETS

Instructions

1. Select the appropriate worksheet for the habitat types (land use management system) on which one or more wildlife practices will be applied.

- Use one worksheet per management system, which may include one or more fields.
- Crop fields with the same crop rotation and management practices should be grouped together for habitat evaluation.
- Fields which are managed primarily as permanent hayland should be evaluated on a separate worksheet from fields managed primarily for pasture.

2. Evaluate the benchmark condition (existing conditions without the proposed wildlife practices) and the planned condition (with the proposed wildlife practices).

- Record the point score that most closely fits each item.
- Add up the points for the benchmark condition and the planned condition.
- Divide by the maximum possible score to get the benchmark and planned index values for the system.

3. If you are evaluating more than one system, record the results from each worksheet on the summary worksheet.

- Use the summary worksheet to calculate the net effect of the wildlife management plan (overall planned index minus the overall benchmark index.

WILDLIFE HABITAT EVALUATION
WORKSHEET
CROPLAND

Client _____ Tract No. _____

Date _____ Field No. _____

Evaluated by _____ Acres _____

CROPLAND HABITAT INDEX	POINTS	BENCHMARK	PLANNED
Crop Residue Management			
Residue >50%	10		
Residue 30-50%	7		
Residue 10-29%	5		
Residue <10%; fall cover crop	3		
Residue <10%; no fall cover crop	1	_____	_____
Crop Rotation			
Row crop or small grain, with hay	10		
Row crop-small grain	7		
Continuous row crops (no small grain or hay)	3	_____	_____
Crop Management			
>10% unharvested crop	10		
1-10% unharvested crop	7		
Total crop harvested, with weeds present	4		
Total crop harvested; no weeds present	1	_____	_____
Percent of field perimeter with shrubs and/or grasses field border (min. 20' wide) of not mowed			
75-100%	20		
50-74%	15		
25-49%	10		
<25%, or no border	1	_____	_____
(A) Total Cropland Habitat Points (50 maximum)		_____	_____
(B) Cropland Habitat Index (Total Points/50)		_____	_____

WILDLIFE HABITAT EVALUATION
WORKSHEET
GRASSLAND OR HAYLAND

Client _____ Tract No. _____

Date _____ Field No. _____

Evaluated by _____ Acres _____

GRASSLAND/HAYLAND HABITAT INDEX	POINTS	BENCHMARK	PLANNED
Composition			
Mixture of 2 native grasses and 2 forbs	10		
Mixture of non-native grasses and forbs	8		
Single species native grass with no forbs and legumes	6		
Single species non-native grass with legumes and w/no forbs	4		
Viable seed producing introduced grass species with other species	2		
Non viable seed producing introduced grass species (Pangola and star grass)	1	_____	_____
Mowing or haying management			
Mowed/cut every 90 days at least 8" height	10		
Mowed/cut every 90 days <8" height	7		
Mowed/cut every 60 days and at least 8" height	5		
Mowed/cut every 60 days and <8" height	3		
Mowed/cut every 45 days, and <8" height	1	_____	_____
Use by domestic animals or humans			
No or minimal disturbance; >95% cover	10		
Light grazing pressure, with min. grazing height 6"; 80 - 95% cover	8		
Moderate grazing pressure; 75 - 80% cover	6		
Heavy grazing pressure; <75% cover	2		
Frequent human disturbance (e.g., lawn)	1	_____	_____
Percent of field perimeter with a field border (min. 20' wide)			
75-100%	20		
50-74	15		
25-49%	10		
<25%, or no border	1	_____	_____
(A) Total Grassland/Hayland Habitat Points (50 maximum)		_____	_____
(B) Grassland/Hayland Habitat Index (Total Points/50)		_____	_____

WILDLIFE HABITAT EVALUATION
WORKSHEET
FORESTLAND

Client _____ Tract No. _____

Date _____ Field No. _____

Evaluated by _____ Acres _____

FORESTLAND HABITAT INDEX	POINTS	BENCHMARK	PLANNED
Livestock are excluded from forestland			
Yes	5		
No	0	_____	_____
Diversity			
>7 tree species; several size classes present	10		
3-6 species and/or only 1 size class present	6		
2 species and only 1 size class present	3		
1 species and only 1 size class present	1	_____	_____
Snags, cavity trees, or nest boxes present			
>4 snags, cavity trees, or nest boxes present	10		
2-3 snags, cavity trees, or nest boxes present	6		
1 snag, cavity tree, or nest box present	3		
No snags, cavity trees, or nest boxes	1	_____	_____
Understory composition			
>75% cover of shrubs, forbs, and grasses	10		
25-74% cover of shrubs, forbs, and grasses	6		
<25% cover of shrubs, forbs, and grasses	3		
Primarily bare ground	1	_____	_____
Mast producing trees (acorns, nuts, fruits)			
>4 different mast producing species and/or 15 mast producers per acre	10		
4 different mast producing species and/or 10-14 mast producers per acre	6		
3 different mast producing species and/or 5-9 mast producers per acre	3		
<3 different mast producing species and/or <4 mast producers per acre	1	_____	_____
Percentage of small forest openings (<0.5 acre)			
No openings in forest stand	5		
1-10% of forest stand	3		
10-20% of forest stand	1	_____	_____
(A) Total Forest Habitat Points (50 maximum)		_____	_____
(B) Forest Habitat Index (Total points/50)		_____	_____

WILDLIFE HABITAT EVALUATION
WORKSHEET
RIPARIAN CORRIDOR

Client _____ Tract No. _____

Date _____ Field No. _____

Evaluated by _____ Acres _____

RIPARIAN CORRIDOR HABITAT INDEX	POINTS	BENCHMARK	PLANNED
Condition of stream channel and banks			
Minimally disturbed: generally stable channel & banks; mostly natural conditions and natural vegetation.	10		
Moderately disturbed: some streambank erosion, and/or replacement of natural vegetation	5		
Significantly disturbed: severe bank erosion/gullies, streambanks poorly vegetated, streambanks armored, and/or stream recently channeled.	1	_____	_____
Water quality			
Good: minimal pollution by sediment, nutrients, contaminants, etc.	10		
Fair: moderate sediment loading & turbidity during storm events; some algae during low flows.	5		
Poor: pollution by sediment, nutrients, contaminants are evident (e.g., heavy sedimentation, excessive algae, chemical spills).	1	_____	_____
Plant composition in the riparian buffer			
Predominantly trees and/or shrubs.	10		
Predominantly perennial herbaceous plants.	5		
Predominantly row crops, other annual plants, or bare ground.	1	_____	_____
Management of the riparian buffer			
Generally undisturbed by humans or domestic animals.	10		
Not mowed/disturbed.	7		
Mowed/disturbed occasionally.	4		
Mowed/disturbed frequently, or no permanently vegetated buffer.	1	_____	_____
Buffer width			
≧ 35 feet wide	10		
26- 35 feet wide.	7		
11- 25 feet wide.	4		
< 10 feet wide, or no permanently vegetated buffer.	1	_____	_____
(A) Total Riparian Corridor Habitat Points (50 maximum)		_____	_____
(B) Riparian Corridor Habitat Index (Total points/50)		_____	_____

WILDLIFE HABITAT EVALUATION
WORKSHEET
SUMMARY

Client _____ Tract No. _____

Date _____ Field No. _____

Evaluated by _____ Acres _____

			BENCHMARK (BEFORE) CONDITION			PLANNED (AFTER) CONDITION		
(a) HABITAT TYPE (LAND USE)	**(b) FIELD NO.**	**(c) ACRES**	**(d) HABITAT INDEX**	**(e) WEIGHTED INDEX** (Column c X Column d)	**(f) OVERALL INDEX** (Total Column e / Total Column c)	**(g) HABITAT INDEX**	**(h) WEIGHTED INDEX** (Column c X Column g)	**(i) OVERALL INDEX** (Total Column h / Total Column c)
TOTALS								

WILDLIFE HABITAT INDEX
NET EFFECT OF PLAN

Overall Index Planned (Column i) _____ - Overall Index Benchmark (Column f) _____ = Net Effect of Plan _____

Table 1. Vegetation Producing Food, Shelter, Cover or Breading for Wildlife

Woody and herbaceous vines		
Spanish name	English name	Scientific name
Bejuco de berac	West Indian milkberry	*Chiococca alba (L.) Hitcho.*
Bejuco de paloma (Bejuco de guajanilla)	Bread and cheese	*Paullinia pinnata L.*
Bejuco de playa	Bay hops	*Ipomoea pes-caprae*
Bejuco de puerco	Darkeye morning glory	*Ipomoea tiliacea*
Cohombro (Pepinillo)	Cherkin, Cucumber	*Cucumis anguria L.*
Conchitas	Butterfly pea	*Clitoria ternatea*
Cundeamor	Wild balsam apple balsampear	*Momordica charantia L.*
Flor de conchitas	Centro, butterfly-pea	*Centrosema pubescens*
Parcha	Passion fruit	*Passiflora edulis Sims.*
Tagua-tagua (Flor de pasión silvestre)	Love-in-a-mist	*Passiflora foetida L.*
	Purple bushbean	*Macroptilium atropurpureum*
Forbs and runners		
Blero	Spleen amaranth	*Amaranthus dubius Mart.*
Botón de cadete (molinillo)	Lion's ear	*Leonotis nepetifolia (L.) R. Br.*
Cardo santo		*Mexican pricklypoppy*
Cotorrera de agua	Slender	*Fourspike heliotrope*
Crotalaria	Sunn hemp	*Crotalaria juncea*
Guineo	Banana	*Musa sapientum L.*
Habichuela parada	Wild bush bean	*Macroptilum lathyroides*
Leche vana (acerca amor)	Mexican fireplant	*Euphorbia heterophylla (L.)*
Lechecillo	Pillpod sandmat	*Chamaesyce hirta (L.) Millsp*
Llantén	Greater plantain	*Plantago major (L)*
Matagallina (yerba mora)	Black nightshade	*Solanum americanum Mill*
Moriviví bobo (Yerba rosario)	Shyleaf	*Aeschynomene americana L.*
Verdolaga	Little hogweed	*Portulaca oleracea*
Verdolaga de abrojo	Big caltrop	*Kallstroemia maxima (L.)*
Verdolaguilla (Verdolaga francesa)		*Talinum triangulare (Jacq.)*
Vinagrillo (Trebolillo)	Yellow sorrel	*Oxalis corniculata (L.)*
Yerba de hicotea	Denseflower knotweed	*Polygonum glabrum Willd.in L*
Yerba de zanjas	Ditch-grass	*Ruppia maritima L.*

Grass and grass-like		
Spanish name	English name	Scientific name
Arrocillo	Barnyard grass	*Echinochloa crus-galli (L.)*
Arroz	Rice	*Oryza sativa L.*
Carrucillo (cortadora)		*Olyra latifolia L.*
Cerrillo (Matojo de burro)	Dropseed, smutgrass	*Sporobolus indicus*
Cohitre azul	Tahitian bridalveil	*Gibasis geniculata (Jack)*
Cohitre falso (carruzo)		*Ichnanthus pallens*
Coquí	Common goldstar	*Hypoxis decumbens (L.)*
Coquí blanco		*Rhynchospora nervosa spp. Ciliata*
Cortadora de altura	Forest saw-grass (razor grass)	*Scleria secans L.*
Grama colorada	Broadleaf carpetgrass	*Axonopus compressus*
Grama de costa (horquetilla)	Radiate fingergrass	*Chloris radiata (L.) Sw*
Junquito	Forked fimbry	*Fimbristylis dichotoma (L.)*
Maíz	Corn	*Zea mays L*
Malojillo	Para grass	*Brachiaria mutica*
Matojo blanco (cortadero)	Cortadero	*Paspalum virgatum L.*
Millo, Mijo	Broomcom	*Sorghum vulgare*
Pajón	Railroad- track grass	*Dichanthium annulatum*
Pata de gallina	Goosegrass	*Eleusine indica (L.) Gaertn.*
Pendejuelo	Crabgrass	*Digitaria sanguinalis L. Scop.*
Yerba bahía	Bahia grass	*Paspalum notatum*
Yerba Bermuda	Bermuda grass	*Cynodon dactylon*
Yerba brava (cortadera)	Cortadera	*Paspalum millegrana Schrad.*
Yerba Buffel	Buffel grass	*Pennisetum ciliare*
Yerba de Guinea	Guinea grass	*Urochloa maxima*
Yerba egipcia	Crowfoot grass	*Dactyloctenium aegyptium (L.)*
Yerba Johnson	Johnson grass	*Sorghum halepense*
Yerba venezolana	Venezuelan grass	*Paspalum fasciculatum*

Shrub-like, shrubs and trees		
Spanish name	English name	Scientific name
Achiotillo		*Alchornea latifolia Sw.*
Adormidera (guayacanillo)	Yellow balsam	*Croton flavens*
Ají (ají picante)	Wild pepper	*Capsicum frutescens L.*
Algarroba	Locust tree	*Hymenaea coubaril*
Almácigo	Turpentine tree	*Bursera simaruba*
Almendrón	Bully-tree	*Pouteria multiflora L.*
Anón	Sugar apple	*Annona squamosa L.*
Bálsamo (Doña Julia Pata de pájaro)	Scarletbush	*Hamelia patens (Jack)*
Berenjena cimarrona	Turkey berry	*Solanum torvum Sw.*
Bretónica prieta		*Melochia nodiflora Sw.*
Bucayo enano (Bucayo sin espina, machete)	Erythrina	*Erythrina berteroana Urban*
Cabo de hacha (Tinacio)	Broomstick	*Trichilia hirta*
Cachimbo	Red cappel	*Palicourea crocea (Sw.) R.&S.*
Cadillo	Caesarweed	*Urena lobata*
Cadillo de perro	Sacramento Burrbark	*Triumfetta semitriloba Jacq.*
Café de La India (Mirto)	Orange jessamine	*Murraya exotica (L.) Jack*
Camasey blanco		*Miconia prasina*
Camasey de felpa (terciopelo)		*Miconia racemosa Aubl. D.C.*
Canela	Wild cinnamon	*Canella winteriana*
Capá blanco	Bastard stopper	*Petitia domingensis Jacq.*
Capá colorado (cerezo)	Smooth manjack	*Cordia laevigata Lam.*
Capá prieto		*Cordia alliodora*
Caracolillo		*Trichilia pallida*
Cariaquillo Santa María	Button or wild sage	*Lantana involucrata L.*
Cedro hembra	Cigar box cedar	*Cedrela odorata*
Ceiba	Silk-cotton tree	*Ceiba pentandra*
Cerezo	Red manjack	*Cordia collococca*
Cerezo, Caracolillo (cotorrerillo)	Wild honeytree	*Casearia decandra Jacq.*
China dulce	Sweet orange	*Citrus sinensis (L) Osbeck*
Ciruela del país (jobillo)	Purple mombin	*Spondias purpurea L.*
Cóbana negra		*Stahlia monosperma*
Cojoba		*Pithecellobium arboreum*
Corazón	Custard apple	*Annona reticulata L.*
Corazón cimarrón	Pond apple	*Annona glabra*
Corcho	Black mampoo	*Guapira fragans*
Crotón lobulado	Lobed croton	*Croton lobatus L.*
Cupey	Balsam fig	*Clusia rosea*
Desmanto		*Desmanthus spp*
Emajagua	Sea hibiscus	*Hibiscus tiliaceus L*
Escoba blanca (majagua)	Commoc wireweed	*Sida acuta Burm. f*
Espino rubial	Prickle yellow	*Zanthoxylum caribaeum Lam.*

Shrub-like, shrubs and trees (cont.)		
Spanish name	English name	Scientific name
Espinosa, Ayua	Prickle ash	*Zanthoxylum martinicense*
Flamboyán	Flame tree	*Delonix regia*
Fresa de montaña	Wild rasperry	*Rubus rosifolius Smith*
Gandul	Pigeon pea	*Cajanus cajan Huth*
Garrocho	Swizzle-stick tree	*Quararibea turbinata*
Granadillo	Yellow sanders	*Buchenavia tetraphylla*
Guaba		*Inga vera*
Guácima	Bastard cedar	*Guazuma ulmifolia*
Guamá	Pomshock	*Inga lauriana*
Guama venezolano		*Inga quaternata*
Guanábana	Soursop	*Annona muricata L.*
Guara		*Cupania americana*
Guaraguo	Musk wood	*Guarea guidonia*
Guayacán	Lignum-vitae	*Guaiacum officinale*
Guayacán blanco	Hollywood lignum-vitae	*Guaiacum sanctum*
Hedionda	Coffee senna	*Senna occidentalis L.*
Hicaco, Icaco	Coco plum	*Chrysobalanus icaco L.*
Higo silvestre	Common fig	*Ficus carica L*
Higüero	Calabash	*Crescentia cujete*
Higuillo de hoja menuda		*Piper aduncum L.*
Jaboncillo	Wingleaf soapberry	*Sapindus saponaria*
Jagua	Genip	*Genipa americana L.*
Jagüey blanco		*Ficus trigonata*
Jagüey macho	Wild bayantree	*Ficus citrifolia*
Jagüey prieto		*Ficus sintensii*
Jobo (jobo gusanero)	Yellow mombin	*Spondias mombin L.*
Laurel amarillo		*Nectandra turbacensis*
Laurel avispillo (bobo)		*Cinnamomum elongatum*
Laurel de paloma		*Ocotea portoricensis Mez.*
Laurel espada		*Ocotea floribunda*
Laurel geo	Loblolly sweetwood	*Ocotea leucoxylon*
Maga	Maga wood	*Thespesia gandiflora*
Mamey	Mammee apple	*Mammea americana L.*
Mangó	Mango tree	*Mangifera indica L.*
Manzanillo	Manchineel	*Hippomane mancinella*
María		*Calophyllum calaba*
Maricao (doncella)		*Byrsonima spicta*
Masa		*Tetragastris balsamifera*
Mata de mariposa		*Gonzalagunia hirsuta (Jack)*
Mierda de gallina	Caribbean myrtlecroton	*Bernardia dichotoma (Willd.).*
Moca	Cabbage bark	*Andira inermis*
Moral (Moral de paz)	White/Mucilage manjack	*Cordia sulcata DC*
Moralón		*Coccoloba pubescens*
Muñeco/Capá (cimarrón)	Manjack	*Cordia borinquensis Urban*
Murta		*Eugenia sintenisii Kiaersk*

Shrub-like, shrubs and trees (cont.)		
Spanish name	English name	Scientific name
Naranja	Sour orange	*Citrus aurantium L.*
Nigua	Chiggery grapes	*Tournefortia hirsutissima L*
Noni, Gardenia hedionda	Indian mulberry	*Morinda citrifolia*
Ortegón		*Coccoloba rugosa*
Pajuil	Cashew nut	*Anacardium occidentale L.*
Palma de abanico	Broom teyer	*Coccothrinax alta*
Palma de lluvia		*Gaussia attenuta*
Palma de sierra	Sierra palm	*Prestoea montana*
Palma real	Puerto Rico royal palm	*Roystonea borinquena O. F. Cook.*
Palma sombrero	Hat palm	*Sabal causiarum*
Palo blanco	Varital	*Drypetes glauca Vahl.*
Palo de Jazmín		*Styrax portoricensis*
Palo de paloma (coral, manto)	Poison cherry, (wild cherry)	*Crossopetalum rhacoma Crantz*
Palo de Perico (basora prieta saraguaso)	Black sage	*Cordia polycephala (Lam.)*
Palo de violeta	Violet tree	*Polygala cowellii*
Palo moro (bálsamo)	Seminole balsamo	*Psychotria nervosa*
Panapén	Breadfruit	*Artocarpus altilis*
Pazote	Sowbane (wormseed)	*Chenopodium ambrosioides L.*
Péndula (Higuerillo, palo de guitarra)	Florida fiddlewood (Pasture fiddlewood)	*Citharexylum fruticosum L*
Pollo		*Dendropanax arboreus*
Pomarrosa	Rose apple, plum rose	*Syzygium jambos*
Rabo ratón	Wild cherry	*Casearia arborea*
Roble blanco	White cedar	*Tabebuia heterophylla*
Roble Cimarrón		*Tabebuia haemantha*
Roble de guayo (Palo de vaca)	Bodywood	*Bourreria succulenta Jacq.*
Sabinón		*Croton poecilantus*
Saúco cimarrón (Avispillo)	Muttonwood	*Turpinia occidentalis (Sw)*
Sebucán, dildo	Royen's tree cactus	*Pilosocereus royenii (L.)*
Tabonuco	Candlewood	*Dacryodes excelsa Vahl.*
Tachuelo	Fustic	*Pictetia aculeata*
Tortugo amarillo	False mastic	*Mastichodendron foetidissimum*
Tuatúa (higuerreta cimarrona)	Bellyache bush	*Jatropha gossypiifolia L.*
Ucar	Black olive	*Bucida buceras*
Uva de Playa	Seaside grape	*Coccoloba uvifera (L.) L.*
Yagrumo hembra	Trumpet tree	*Cecropia schreberiana*
Yagrumo macho	Matchwood	*Schefflera morototoni*
Yerba capitana	Bertero's mistletoe	*Phoradendron dichotomum*
Yuca	Cassava	*Manihot esculenta Crantz*
Zarcilla	Leadtree	*Leucaena leucocephala*
Zarzabacoa enana	Pencil flower/cheesytoes	*Stylosanthes hamata*
Zarzamora	Sawtooth blackberry	*Rubus argutus Link.*

Sources:

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Table 2. Seeding Rates for Grasses, Forbs and Legumes

Mixture most benefical for wildlife			Origen	Seeding rate (lbs/acre) Mix species		
Grasses				2/3	4	5
Grama colorada	Broadleaf carpetgrass	*Axonopus compressus*	N/N	3	2	6
Pajón	Railroad- track grass	*Dichanthium annulatum*	N/N	5	5	1
Yerba bahía	Bahia grass	*Paspalum notatum*	N/N	20	10	3
Yerba Bermuda	Bermuda grass	*Cynodon dactylon*	I	40	20	10
Yerba Buffel	Buffel grass	*Pennisetum ciliare*	I	5	5	6
Yerba de Guinea	Guinea grass	*Urochloa maxima*	N/N	20	10	3
Yerba Johnson	Johnson grass	*Sorghum halepense*	I	5	5	3
Legumes						
Conchitas	Butterfly pea	*Clitoria ternatea*	I	4	2	2
Crotalaria	Sunn hemp	*Crotalaria juncea*	I	4	2	2
Desmanto		*Desmanthus spp*	I	4	2	2
Flor de conchitas	Centro, butterfly-pea	*Centrosema pubescens*	N	2	2	2
Zarcilla	Leadtree	*Leucaena leucocephala*	I	4	2	2
Stylo	Pencil flower/cheesytoes	*Stylosanthes hamata*	N	4	2	2
	Purple bushbean	*Macroptilium atropurpureum*	I	4	2	2

N/N - Native/Naturalized

I - Introduced

Table 3. Spanish, English and Scientific Names of Birds

Spanish name	English name	Scientific name
Bien-Te-Veo de P. R.	Puerto Rican vireo	*Vireo latimeri*
Bobito	Lasser Antllean Pewee	*Contopus latirostris*
Calandria	Greater oriole	*Icterus dominicensis*
Carpintero de P. R.	Puerto Rican woodpecker	*Melanerpes portoricensis*
Clérigo	Loggerhead kingbird	*Tyrannus caudifasciatus*
Comeñame	Puerto Rican bullfinch	*Loxigilla portoricensis*
Cotorra de Puerto Rico	Puerto Rican parrot	*Amazona vittata*
Diablito	Hooded mannikin	*Lonchura cucullata*
Gorrión chicharra	Grasshopper sparrow	*Ammodramus savannarum*
Gorrión negro (Chamorro negro)	Carib black-faced grassquit	*Tiaris bicolor*
Guabairo	Puerton Rican Nightjat	*Caprimulgus noctitherus*
Jilguero (Canario del país)	Antillean euphonia	*Euphonia musica*
Judío	Smooth-billed ani	*Crotophaga ani*
Juí	Puerto Rican flycatcher	*Myiarchus antillarum*
Julián Chiví (Cien chavos por el)	Black-Whiskered vireo	*Vireo altiloquus altiloquus*
Llorosa de P.R.	Puerto Rican tanager	*Nesospingus speculifrus*
Mariquita de P. R.	Puerto Rican Yellow-shouldered blackbird	*Agelaius xanthomus xanthomus*
Martinete	Green Heron	*Butorides virescens maculatus*
Mozambique de P.R., Chango	Greater antillean grackle	*Quiscalus niger*
Múcaro Común	Puerto Rican Screech-Owl	*Octus nudipes*
Pájaro Bobo Mayor	Puerto Rican Lizard-Cuckoo	*Saurothera vieilloti*
Paloma cabeciblanca	White-crowned pigeon	*Columba leucocephala*
Paloma común, Paloma casera	Rock dove	*Columba livia*
Paloma turca	Scaly-naped pigeon	*Columba squamosa*
Perdiz (Paloma perdiz rojiza)	Ruddy quail-dove	*Geotrygon montana*
Pitirre	Gray kingbird	*Tyrannus dominicensis dominicensis*
Playero Sabanero	Antillean killdeer	*Charadrius vociferus*
Reina Mora de Puerto Rico	Puerto Rican stripe-headed tanager	*Spindalis zena portoricensis*
Reinita de Bosque enano	Elfin Woods Warber	*Dendroica angelae*
Reinita de Puerto Rico	Bananaquit	*Coereba flaveola portoricensis*
Reinita gusanera	Worm-eating Warbler	*Helmitheros vermivorus*
Reinita Mariposera	Adelaide's Warbler	*Dendrocygna adelaidae*
Reinita pechidorada	Northern Parula	*Parula americana*
Reinita trepadora	Black-and-White Warbler	*Mniotilta varia*
Rolita de Puerto Rico	Common ground-dove	*Columbina passeriana*
Ruiseñor	Northern mockingbird	*Mimus polyglottos*
San Pedrito de Puerto Rico	Puerto Rican Tody	*Todus mexicanus*
Tórtola cardosantera	Zenaida dove	*Zenaida aurita*
Tórtola rabilarga	Mourning dove	*Zenaida macroura*
Turpial	Troupial	*Icterus icterus*
Veterano	Orange-cheeked waxbill	*Estrilda melpoda*

Spanish name	English name	Scientific name
Zorzal de patas coloradas (Zorzal azul)	Red-legged thrush	*Turdus plumbeus*
Zorzal pardo	Pearly-eyed thrasher	*Margarops fuscatus*
Zumbador verde de P.R.	Green mango	*Anthracothorax viridis*
Zumbadorcito de P.R.	Puerto Rican Emerald	*Chlorostibon maugaeus*

Sources:

Puerto Rico's Birds in Photographs, Mark W. Oberle.
A Guide to the Birds of Puerto Rico and Virgin Islands, Herbert A. Raffaele.
Aves de Puerto Rico, Virgilio Biaggi.

Spanish	Habitat	Nest	Feeding
Bien-Te-Veo de Puerto Rico	Mountain forest, coffee plantation, coastal karst and thorn forest with vine tangles.	Deep, cup-shaped, low to moderate elevation.	Insects (grassshoper, cicadas, beetles, aphid and caterpillars).
Carpintero de Puerto Rico	Forest, coffee plantations, mangroves, palm grove, parks and gardens.	Nest cavities are usually high in trees.	Insects, lizards, scorpions, and frogs.
Come ñame de Puerto Rico	Moist and dry forest with thick brushy areas, and coffee plantations (not found from Fajardo to Ceiba).	Open or domed with an entrance in the side.	Seeds, fruits and buds.
Cotorra de Puerto Rico	Forest	A large tree cavity in a tree trunk, usually palo colorado tree (*Cyrilla racemiflora*).	Seeds, fruits and flowers, important food tree: sierra palm (Prestoea montana).
Jui	Shade coffee plantations and lower elevation forests, especially in coastal scrub forests.	Tree hole	Weevils, caterpillars, bees, wasps, dragonflies, and hemipteran insects, wild fruit and berries. occasionally snails, lizards and frogs.
Puerto Rican Lizard-Cuckoo	Thick forests, coffee plantations limestone hills, and even suburban neighborhoods adjacent to dense vegetation.	Twig platform in a tree or bush.	Small lizards, large spiders and insects piders and insects, including cicadas, beetles, stick insects, and caterpillars.
Múcaro Común	Wooded areas, dense tree stands.	Tree cavity, hole in a tree.	Large insects (crickets, grasshoppers, roaches, beetles, moths, caterpillars).
Guabairo	Dry, semideciduous forest with open understory and dense leaf litter.	Normal clutch and these are laid directly on the leaf litter on the forest floor beneath the brush.	Insects
Zumbador verde de P.R.	Coffee plantations, forest central and western mountains.	Cup-shaped nest that is coated with lichens, typically placed on a tree limb.	Insects (such as beetles, flies, lantern flies), spiders, and flower nectar.
Zumbadorcito de Puerto Rico	Mountain forest, it is also found irregularly on the coast (drier south).	Tiny cup made of lichens, tree ferns, and other plant material.	Insects (lantern flies, mosquitoes, and other fly species), spiders, and nectar.

Spanish	Habitat	Nest	Feeding
San Pedrito de Puerto Rico	Forest types with dense thickets and vines, as long as there are earthen banks or road cuts for nesting, arid area in the south.	Excavates a curved burrow with a terminal nest chamber into an earth bank.	Insects, including katydids, grasshoppers, crickets, earwigs, dragonflies, flies (Diptera), and beetles (Coleoptera), as well as spiders, and occasional small lizards and fruits.
Reinita Mariposera*	Dry, lowland forests and some moist forest areas, with tangles of vines and thickets, especially in the southwest and the northern limestone hills.	Finely woven cup-shaped located in a tree or dense thicket, cup placed 3-20 feet high in a tree or shrub.	Lantern flies, grasshoppers, caterpillars, stink bugs, flies, weevils, other beetles, spiders, and rarely small frogs.
Reinita del Bosque Enano	Mountain cloud forest and lower montane forest from 370-1030 meters in elevation.	Unknown	Insects
Llorosa de P.R.	Mountain forests, shade coffee plantations, and gardens at higher elevations.	Cup-shaped made of roots, vines and strands of fungus, lined with strips of palm leaves.	Insects, (moths, caterpillars, beetles, grasshoppers, ants), spiders, snails, and lizards) fruit and some seeds.
Reina Mora*	Forests, suburban gardens, and plantations with fruiting plants	Ranging from a small cup, to bulky, deeper nests.	Berries and fruits such as figs, blackberries and Cecropia fruits, but will consume some aphids and other insects.
Mariquita de Puerto Rico	Open, dry forests and mangroves of southwestern Puerto Rico.	Cup nest in mangroves, palms, and other trees or in a tree cavity or nest box.	Insects and seeds.
Bobito	Forests of moderate elevation, coffee plantations.	Cup of mosses, lichens and other fine materials, with thin bark camouflaging the exterior.	Insects

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Aves de Puerto Rico, Virgilio Biaggi.

Table 5. Endemic Birds Nesting Period

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Spanish name \ Month	J	F	M	A	M	J	J	A	S	O	N	D
Bien-Te-Veo de Puerto Rico				●	●	●						
Bobito*				●	●							
Carpintero de Puerto Rico	●	●	●	●								
Come ñame de Puerto Rico		●	●	●	●	●						
Cotorra de Puerto Rico		●	●	●	●	●						
Guabairo pequeño		●	●	●	●	●	●					
Juí		●	●	●	●	●	●					
Llorosa de Puerto Rico	●	●	●	●	●	●	●	●				
Mariquita de Puerto Rico					●	●						
Múcaro Común				●	●	●						
Pájaro Bobo Mayor		●	●	●								
Reina Mora*	●	●	●	●	●	●						
Reinita del Bosque Enano	●	●	●	●								●
Reinita Mariposera*			●	●	●	●						
San Pedrito de Puerto Rico		●	●	●	●							
Zumbador verde de Puerto Rico	●	●								●	●	●
Zumbadorcito de Puerto Rico		●	●	●	●							

Sources:

Puerto Rico's Birds in Photographs, Mark W. Oberle

A Guide to the Birds of Puerto Rico and Virgin Islands, Herbert A. Raffaele

Aves de Puerto Rico, Virgilio Biaggi